ABSTRACT

An Ethernet-PON that accommodates real-time broadcast/image signals and provides security for broadcast/image signals, allows user authentication without a CAS. An OLT in the Ethernet-PON switches digital broadcast/image data signals from a broadcaster according to respective broadcast/image selection information of users, and scrambles the switched broadcast/image data on a user-by-user basis. The scrambled data is multiplexed and converted to a broadcast/image optical signal, which is transmitted, combined with a communication signal from an IP network, to ONTs through an optical splitter. The ONTs select broadcast/image data from the broadcast/image signals according to the respective broadcast/image selection information.